

**REMARKS**

Claims 1-7, 9-22 and 25-31 are pending in this application. Claims 1-21 and 27-31 have been withdrawn from consideration. By this Amendment, the specification is amended to correct a typographical error; and claims 1, 22 and 31 are amended. Claims 8 and 23 are canceled without prejudice to, or disclaimer of, the subject matter recited therein. Support for the amendments can be found in the specification (see page 10, line 28; and page 11, lines 35-36). No new matter is added.

In view of the foregoing amendments and the following remarks, reconsideration and allowance of the claims are respectfully requested.

**I. Rejection Under 35 U.S.C. §102**

The Patent Office rejects claims 22, 23, 25 and 26 under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent Application Publication No. 2003/0105266 to Suga ("Suga"). Claim 23 is canceled, thus rendering the rejection moot as to that claim. As to the remaining claims, this rejection is respectfully traversed.

Suga describes a resin composition having a compound (B). In the Amendment After Final Rejection, submitted on November 10, 2010, it was argued that Suga's compound (B), in any embodiment, contains at least one blocked isocyanate group (Suga, paragraph [0132]). This is because Suga discloses two embodiments relating to compound (B):

1. Compound (B), in which at least **one blocked isocyanate group** and at least one epoxy group are included; or
2. Compound (B) being a mixture of a compound (A) having **two or more blocked isocyanate groups**, and a compound (c) having two or more epoxy groups (Suga, paragraph [0132]).

As shown above, all of the embodiments of Suga's compound (B) contain at least one blocked isocyanate group.

In response, the Patent Office makes the following allegation:

"Suga teaches *polyisocyanates* (para. 137) having at least one blocked isocyanate group (para. 132) further reacted with an epoxy compound having a hydroxyl group (para. 136). Since there are more than one isocyanate group in a polyisocyanate, having at least one blocked isocyanate group results in the possibility of having multiple unblocked isocyanate groups."

(Advisory Action, page 2).

For at least the reasons that follow, Applicants respectfully submit that the Patent Office has not pointed to any portion in the disclosure of Suga to support an allegation that Suga describes an embodiment that does not contain a reacted blocking agent (Office Action, page 4).

First, the Patent Office acknowledges in the Advisory Action that the first embodiment of compound B, in which at least **one blocked isocyanate group** and at least one epoxy group are included, does in fact contain at least one blocked isocyanate group. Even if that same compound B were to contain one or more unblocked isocyanate groups, as alleged by the Patent Office, that does not change the fact that the same compound B also has at least one blocked isocyanate group. Put differently, regardless of what additional groups may be present in compound B, so long as compound B contains at least one blocked isocyanate group (as acknowledged in the Advisory Action), Suga fails to disclose an embodiment that does not contain at least one blocked isocyanate group.

Second, there is only one instance where Suga expressly discloses to one of ordinary skill in the art where a compound may include an unblocked isocyanate group. This is with respect to compound (A). Specifically, Suga discloses that compound (A) may include an unblocked isocyanate group, but only in addition to two or more blocked isocyanate groups, insofar as it does not negatively affect the objectives of Suga's composition (Suga, paragraph [0072]).

Therefore, even in the case where compound (B) is a mixture of a compound (A) having two or more blocked isocyanate groups with a compound (c), even with the presence of an unblocked isocyanate group, compound (A) of Suga (and likewise, compound (B)) still remains a compound **having a reacted blocking agent**.

Accordingly, Suga fails to disclose an impact modifier terminated by epoxide groups of the formula (I), in which Y<sub>2</sub> is a divalent radical of aliphatic, cycloaliphatic, aromatic or araliphatic diisocyanates after removal of the isocyanate groups or is a trivalent radical of trimers or biurets of aliphatic, cycloaliphatic, aromatic or araliphatic diisocyanates after removal of the isocyanate groups, as recited in claim 22. All of Suga's embodiments contain a reacted blocking agent, or at least one blocked isocyanate group, as described above.

It is well settled that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *See* MPEP §2131.

Based on the above, Suga fails to disclose each and every feature of claim 22 and, thus, does not anticipate claim 22. The remaining claims depend from claim 22 and, likewise, are also not anticipated by Suga for at least the reasons set forth above with respect to claim 22, as well as for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

## **II. Rejection Under 35 U.S.C. §103**

The Patent Office rejects claims 22, 23 and 26 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,484,853 to Chen et al. ("Chen") in view of U.S. Patent No. 3,505,283 to Dalhuisen ("Dalhuisen"). Claim 23 is canceled, thus rendering the rejection moot as to that claim. As to the remaining claims, this rejection is respectfully traversed.

Claim 22 recites, *inter alia*: "An impact modifier terminated by epoxide groups of the formula (I)...wherein:... Y<sub>1</sub> is a polyoxybutylene terminated with hydroxyl groups or a hydroxyl-terminated polybutadiene...." Dalhuisen and Chen would not have rendered obvious the subject matter of claim 22.

Chen describes a two-part adhesive composition comprising a urethane resin and a polyamine hardener (Chen, col. 2, lines 1-14). Chen discloses various suitable polyols, which include low molecular weight glycols such as ethylene glycol, ethylene oxide or propylene oxide oligomers or polyetherpolyols (Chen, col. 4, lines 1-6). However, Chen does not disclose, or provide any reason or rationale for one of ordinary skill in the art to have selected, polyoxybutylenes or hydroxyl-terminated polybutadienes, as recited in claim 22. Dalhuisen does not remedy these deficiencies of Chen.

In particular, Dalhuisen discloses thickening agents for epoxy resins, comprising a hydroxyl containing epoxy polymer, carboxylic acid hardening agents and an isocyanate as a chemical thickening agent (Dalhuisen, col. 1, lines 20-26). However, Dalhuisen is silent as to polyols and, thus, is wholly absent of any reason or rationale that would have led one of ordinary skill in the art to have selected a polyoxybutylene terminated with hydroxyl groups or a hydroxyl-terminated polybutadiene as Y<sub>1</sub> in formula (I) of claim 22, with any reasonable expectation of success.

Given the uncertainty of how various chemicals will react with one another, one of ordinary skill in the art would have had no reason or rationale to have combined and modified the epoxy resin of Dalhuisen with the polyurethane polymer of Chen, and have selected a polyoxybutylene terminated with hydroxyl groups or a hydroxyl-terminated polybutadiene, without the benefit of Applicants' specification.

With reference to Table 3 of the specification, various examples of adhesive compounds were prepared according to the present disclosure. Examples Z-01, Z-03, Z-05

and Z-06 each demonstrate a superior fracture energy at low temperatures (e.g., -20°C and -40°C) (specification, page 29, Table 3). Examples Z-01, Z-05 and Z-06 were made with polymers B-01, B-05 and B-06, respectively, each of which are polyoxybutylenes terminated with hydroxyl groups (specification, page 26, Table 2). Desmophen 3060 BS, used in Examples Z-02 and Z-03, is a trifunctional propylene glycol, whereas ALCUPOL® D-2021, used in Example Z-04, is a difunctional propylene glycol (specification, page 23, Table 1).

Dalhuisen and Chen do not teach how to achieve enhanced fracture energy at low temperatures, or even that these properties could be achieved. The references thus provide no reason or rationale for one of ordinary skill in the art to have combined and modified the references in a manner necessary to have obtained the claimed impact modifier with any reasonable expectation of success.

Based on the above, Dalhuisen and Chen would not have rendered claim 22 obvious. The remaining claims variously depend from claim 22 and, likewise, would not have been rendered obvious by the applied references for at least the reasons set forth above with respect to claim 22, as well as for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

### **III. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time  
Request for Continued Examination

Date: December 10, 2010

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